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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/075,164

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Shinya Adachi

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EXAMINER

DATSKOVSKIY, SERGEY

ART UNIT

PAPER NUMBER

2121

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,164

Applicant(s)

ADACHI ET AL.

Examiner

Sergey Datskovskiy

Art Unit

2121

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Status of the claims

Claims 1-10 were originally presented. After the First Non-final Office Action, claims 1-8 were amended. Claim 11 was added. Claims 1-11 are still pending in the Instant Application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito et al. (US Patent No. 6,249,740).

Claim 1

Ito teaches a location information transmission method for reporting on-road location information (col. 3, lines 14-19) on a digital map (col. 9, lines 15-17) by an information transmission system, comprising the steps of:

transmitting on-road location information by an information provider (provider is disclosed as a navigation base apparatus; see col. 3, lines 14-19), the on-road location information including:

a string of coordinates line information representing a road shape of a road section (col. 19, lines 50-57; see Fig. 11) having a length determined depending on difficulty of shape matching (col. 20, lines 18-22, 35-37); additional information including an information item selected from a group consisting of attribute information on said road section including a road location of said road section and detailed information on nodes in said road section (col. 9, lines 19-25); and

receiving said on-road location information (navigation apparatus of a moving body; see col. 3, lines 14-19) by a portable navigation apparatus (col. 27, lines 28-32); and

performing shape matching to identify said road section on a digital map of the portable navigation apparatus based on the string of coordinates line information and the additional information (Fig. 11; col. 19, lines 66-67, col. 20, lines 1-12. Shape matching is disclosed as comparing patterns).

Claim 2

It teaches a location information transmission method according to claim 1, wherein a string of coordinates where coordinate data indicating the positions of the nodes (disclosed as intersection, see col. 9, lines 26-32) and interpolation points (disclosed as nodes, see col. 9, lines 20-21) included in said road section are arranged sequentially is used as said string of coordinate information (Fig. 7; col. 17, lines 35-39).

Claim 3

It teaches a location information transmission method according to claim 2, wherein interpolation point that contributes less to shape matching is omitted from the interpolation points included in said road section (col. 8, lines 31-35).

Claim 4

It teaches a location information transmission method according to claim 3, wherein said interpolation point is omitted from said interpolation points (omitting points that are not course-changing is disclosed in col. 8, lines 31-35) where a change in bearing is less than a predetermined angle with respect to bearing from an adjacent interpolation point or node (such check is being disclosed as a part of determining if a point is course-changing; see Fig. 6, col. 12, lines 16-23) and a distance from said interpolation point or node is less than a predetermined distance (col. 20, lines 46-57).

Claim 5

It teaches a location information transmission method according to claim 2, wherein said string of coordinate information comprises coordinate data of a member chosen from a group of nodes and interpolation points included in said road section, the coordinate data being represented using absolute coordinates (disclosed as geographical coordinates, see col. 23, lines 26-33) and

data of members of nodes and interpolation points excluding said chosen member, the data being represented using relative coordinates (col. 23, lines 33-48).

Claim 6

It teaches a location information transmission method according to claim 1, wherein said additional information includes at least one information item chosen from a group consisting of road type code, road number, toll highway code, number of traffic lanes, regulation information, road width, number of connecting links to a crossing node, and connection angle of each connecting link to a crossing node (Fig. 7; col. 9, lines 19-25).

Claim 7

It teaches a location information transmission method according to claim 6, wherein said additional information includes accuracy information relating to a digital map data used to generate the on-road location information (col. 14, lines 39-46, where accuracy information is disclosed by transmitting an outline map that is a scaled down version of a map).

Claim 8

It teaches method for thinning-out a plurality of points representing a road shape by an information transmission system, comprising steps of:

providing a string of coordinates defining said plurality of points (col. 19, lines 50-57; see Fig. 11);

determining whether the bearing deviation, d_n of an interpolation point, P_n of said string of coordinates from a preceding interpolation point, P_{n-1} of said string of coordinates is smaller than a predetermined angle, α (Fig. 6, col. 12, lines 16-23);

determining whether a distance, g_n of the interpolation point, P_n from the preceding interpolation point, P_{n-1} is shorter than a predetermined length, β (col. 20, lines 46-57); and

omitting the interpolation point, P_n from the string of coordinates if both $d_n < \alpha$ and $g_n < \beta$ as determined in the determining steps (col. 8, lines 31-35);

transmitting the string of coordinates from which the interpolation point, p_n , is omitted from the information transmission system (col. 8, lines 41-45).

Claim 9

It teaches the method of claim 8, further comprising a step of incrementing the value of n by 1 and then repeating the steps of determining and the step of omitting (as disclosed in col. 12, lines 14-19: "The course-change point Judgment is carried out for all intersections existing on the searched route..." Therefore, such step inherently implies incrementing the value of n by 1 and repeating the steps of determining and omitting).

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Claim 10

Ito teaches the method of claim 8 wherein each of the points is represented using relative information based on one of the plurality of points (col. 23, lines 33-48).

Claim 11

Ito teaches a location information transmission method according to claim 1, wherein the on-road location information includes relative information indicating an on-road location in said road section (col. 17, lines 53-55, 59-62), the method further comprising a step of performing identifying the on-road location in the road section using the relative information (col. 20, lines 4-11) by the portable navigation apparatus (col. 27, lines 28-32).

Response to Arguments

Applicant's arguments filed on February 03, 2006 have been fully considered but they are not persuasive. The unpersuasive arguments made by Applicant are stated below:

In reference to Applicant's argument:

Regarding claim 1, Ito does not teach "transmitting on-road location information by an information provider, the on-road location information including: a string of coordinates line information representing a road shape of a road section" and "performing shape matching to identify said road section on a digital map of the portable navigation apparatus based on the string of coordinates line information," as required. According to claim 1, a road shape represented by a string of coordinates line information transmitted by an information provider is matched to a road on a digital map of a portable navigation apparatus. By contrast, Ito uses the term "map matching" to refer to a method of indicating a current vehicle position on a route in a map which is being displayed on a display screen (see column 19, lines 31-46). It does not disclose matching a road shape to a road section on a digital map, as presently claimed. Rather, Ito discloses matching a vehicle position to a point on a map displayed on a screen.

Examiner's response:

Ito discloses "road shapes" as *road patterns* (col. 19, line 66 through col. 20, line 10). Road pattern over a section of the road is being matched prior to calculating a vehicle position. Additionally, Ito describes using the travel path of the vehicle (where said path consists of a plurality of connected points, defining a *road shape*) to identify the road. Col. 10, lines 21-23 says: "*the travel path of the vehicle is utilized in "map matching" to identify the road along which the vehicle is traveling*". Therefore, the "map matching" of Ito is directed to not only finding a position on a map, but also to matching a road shape to a road section on a digital map. Regarding the new limitation of having a *portable* navigation apparatus, Ito teaches an option of implementing his invention as a portable moving terminal (col. 27, lines 28-32).

In reference to Applicant's argument:

Further, regarding claim 1, Ito does not teach "a string of coordinates line information representing a road shape of a road section having a length determined depending on difficulty of shape matching" as required. The Examiner cites the specification of Ito at column 20, lines 18-22 for teaching this limitation. It is respectfully submitted that the cited disclosure teaches that a vehicle navigation apparatus (100) establishes a rectangular area, which can include a route length used to perform map matching. As explained above, the "map matching" disclosed by Ito differs from the "shape matching" required by claim 1.

Examiner's response:

The quoted part of Ito shows the connection between the route length and a rectangular area used in map matching. Furthermore, Ito teaches requiring a minimum road length necessary to perform the map matching (col. 20, lines 35-45). The map matching becomes impossible when the route length is below a certain value. Therefore, the length of the route directly depends on difficulty of the map matching. As

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explained above, the "map matching" of Ito includes the matching of road patterns, *i.e.* "shape matching". Thus, claim 1 stays rejected due to all its limitations being anticipated by Ito.

In reference to Applicant's argument:

Regarding claim 8, Ito does not teach "determining whether the bearing deviation, dn , of an interpolation point, P_n ... is smaller than a predetermined angle, a ; determining whether a distance, gn , of the interpolation point, P_n , from the preceding interpolation point, P_{n-1} , is shorter than a predetermined length, p ; and omitting the interpolation point, P_n , from the string of coordinates if both $dn < a$ and $gn < p$ as determined in the determining steps," as required. The Examiner stated that the disclosure of Ito at column 8, lines 31-35 teaches omitting an interpolation point as required by claim 8. Applicant respectfully submits that the cited passage of Ito teaches that detailed route guidance data is added for areas around course change points (such as departure point and destination). Therefore, Ito teaches omitting detailed information regarding areas around a particular point in a route, rather than omitting the point entirely, as in claim 8.

Examiner's response:

In column 8, lines 31-35 Ito teaches that detailed information is only given for areas at and around course-change points, but all other areas and points along the route being simplified. "Simplified" here is interpreted as omitting the unnecessary information including the extra interpolation points. Ito supports such interpretation when he says: *"...with regard to intersections through which the driver is to proceed straight, it is not necessary for the driver to make reference to the vehicle navigation apparatus. This means that it is possible to carry out navigation if there are route data (guidance information) and map images only for the main points of the route at which guidance is needed, such as the intersections and forks where the driver is to turn right or left. Further, if the navigation base is adapted to transmit only such data necessary for guidance to the vehicle, it becomes possible to shorten a time necessary for the data*

transmission and considerably reduce the amount of data to be stored in the vehicle navigation apparatus..." (col. 2, lines 12-26). Ito's algorithm is illustrated in Figure 4, showing the detailed information with extra nodes present inside of the rectangles around the course-change points, and the simplified route information with all interpolation points removed outside of the rectangles.

Dependent claims 2-7 and 9-10 stay rejected due to the unchanged status of the corresponding independent claims 1 and 8.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sergey Datskovskiy whose telephone number is (571) 272-8188. The examiner can normally be reached on Monday-Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight, can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.D.

Assistant examiner

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